to Ref

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Vol 4 No 39

New Spectrum 128K launched in Spain

SINCLAIR has this week launched ıs much-rumoured 128K version of the Spectrum, but in Spain.

The machine will not be available in the UK until Spring next year

The new Spanish micro – called the Spectrum 128 – was launched at the Barcelona Computer Fair on Monday, September 23 According to a Sinclair spokesman, it features a Spanish keyboard, manual and firmware It has 128K Ram and an enhanced sound capability

The development costs have apparently been borne entirely by Sinclair's exclusive Spanish distributor, Investronica SA, and the version of the micro shown at Barcelona will be made entirely in Spain

The UK version of the Spectrum 128 will be launched in this country at the beginning of 1986, the spokesman confirmed, and it will apparently be manufactured in this country

Rumours of a new Spectrum with expanded memory began as long ago as May (see *Popular Computing Weekly*, May 16, 1985) but Sinclair has always denied that the launch of any such machine in the UK was imminent

It is rumoured that part of the recent £10 million deal between Sinclair and Dixons was an undertaking by the ailing computer manufacturer not to release any new Spectrum model which might threaten sales of the present Spectrum Plus until after Christmas

Another Sinclair spokesman said of the Dixon's deal that it was "not at all a question of Sinclair dumping stock on the market – it was a good deal for us, and certainly very welcome "

When questioned about the possibility of an enhanced version of the QL, the spokesman denied that there were any plans to launch such a machine this year but added, "We are very happy with the present 128K QL but we don't rule out the possibility of a version with more memory if the market desires it "

Development work is also continuing on the Pandora portable micro explained the

continued on page 5 ▶

TELETHON CHARITY APPEAL – SEE PAGE 9

First Look

TOP: Level 9's game based on Sue Townsend's book *The Secret Diary of Adrian Mole Aged 13¾* will be released by Mosaic in mid-October for the Spectrum, C64, Amstrad, BBC, Atari 800 and MSX machines, price £9 95

MIDDLE: *Astro Clone* is the latest Spectrum title from Hewson. Written by *Dragontorc* author Steve Turner the game is scheduled for release in mid-October at £7 95

BOTTOM: *Spy vs Spy II* moves the action of its successful predecessor to a remote desert island The C64 title is released next month price £9 95



Commodore 64 version of Adrian Mole

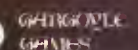
Astro Clone ground combat phase

Increased difficulty in Spy vs Spy II

INSIDE ❯ FREE GIFT WEEK 3 – CUT THE COUPON ON PAGE 6 ❯

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EDITORIAL

Sinclair has always been unpredictable, but a Spanish 128K Spectrum? Few would have seen that as an obvious move!

Yet after a little while it begins to make some kind of sense. Sinclair ran out of money in the middle of the summer holding heavy stocks of Spectrum Plus and without ready cash to continue work on the QL range and Pandora portable.

So Sinclair froze all development work and tried to raise cash. Before the Maxwell deal he sold the surplus Spectrum Plus machines to Dixons for £10m. Sinclair's Spanish distributor coughed up to develop and manufacture a 128K Spectrum. The company has been streamlined, cutting staff and contracting to a single site.

A few management changes later and Sinclair is up and running once again.

The Spectrum Plus is still the top-selling micro and Sinclair denies it has any plans to introduce the 128K Spectrum into the UK before next year. A disappointment, but maybe it makes good business sense. Perhaps it was a condition of the Dixons deal. Perhaps Sinclair is worried about possible conflict with the Commodore 64 or now the QL.

Both are priced at £199 and a 128K Spectrum would sell for around the £175 mark.

Since it hit trouble in June Sinclair has been busy, though. The Barcelona launch, combined with news of the reorganisation, is an indication of an up turn in fortunes for Sinclair.

And work on the new QL derivative and Pandora portable has now apparently recommenced. We wish the company a speedy recovery.

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'The Enterprise is stunning for an 8-bit micro, and graphically it's the most varied machine we've come across' – Real Time Games Software

Acorn agreement shifts emphasis to education

AS DIXONS pulls off another major deal – purchasing all remaining stocks of the Electron, estimated at around 120,000 machines – the continued presence of Acorn in the home computer market becomes more and more a subject of speculation.

In what is seen as a further move for Acorn away from the consumer market the company, Olivetti, the Italian company which now owns 79.8% of Acorn, and the French state-controlled Thomson Micro Informatique last week signed a "collaboration agreement" to develop and promote a common European standard for education micros.

Interestingly, Thomson recently won a contract to supply the USSR with an experimental micro system for education, based on its TO7 and MO5 computers. Following the acession of Mikhail Gorbachev as leader of the Soviet Union, computer literacy has become of increasing importance to Russia.

Should a new standard for European educational micros come out of the tripartite agreement, Acorn must be hoping that it will be providing most of the expertise, building on its position in the British educational market. Whilst Acorn's machines are based on the 6502 chip, though, Thomson's models all use the 6809 processor.

News of the European deal, seems unlikely to stir sluggish sales of the three existing BBC machines.

In the week when Acorn's largest dealer LVL went into receivership owing an estimated £1.5m other dealers were critical of a pricing structure which sets the BBC B (32K) at £290, the B+ (64K) at £469 and the B+ (128K) at £499.

One dealer who only stocks BBC machines said that the B and the B+ were still selling, but that they had "not yet seen a 128K – nobody has asked us for one yet. There will probably be no alteration on price. Acorn are stubborn."

Another dealer said, "The BBC model we sell most of is the B+. There is no call for the 128K - most people don't appreciate the extra memory." A third dealer said, "We have never stocked the B+, and we won't be taking the 128K – I don't think their packs are value for money. You can build a B+ microcomputer from components I sell separately for slightly less than the micro costs in the shops."

68000 micros get new adventure

SINCLAIR is to release a text adventure for the QL next month.

The game, currently with the working title of *The Pawn*, is being developed by a new company Magnetic Scrolls which also plans independent versions of the game for the Atari ST, Amiga and Macintosh machines.

"Although it's called *The Pawn*, it's not about chess," said Anita Sinclair of Magnetic Scrolls.

"It's based in another world and has the player being manipulated in the game by an outside force. The object is to release yourself from the bonds – a wristband – that is keeping you in the game. "The program's real strength is its very sophisticated parser – you can use very complicated sentences and it will understand almost anything," Anita said.

The game will cost £19.95 on microdrive for the QL. The Atari ST version to be published by Firebird early next year will cost a little more, and, unlike the QL version, will also feature around 40 graphics screens.

Implementations on the Amiga and Macintosh are, at the moment planned for the American market only.

MSX prices cut – now under £100

TOSHIBA has implemented a swingeing price cut on its HX-10 MSX computer, and at the same time is also offering the HX 10 in a new package.

The package comprises the HX-10, the HX C810 data recorder, three software packages and a programming guide.

The package also includes 3 amp plugs and a screwdriver so that buyers can get going straightaway. This all costs £139.99, and will be available from the end of September.

The price of the HX-10 on its own has now been reduced to £99.95.

Talking of standards what happened to MSX?

New 32-column bulletin board

A NEW bulletin board has been established for modem-owning Spectrum and QL owners.

The 32-column 300 baud system operates between 12 midnight and 8 am on 01-254 1866.

Colour monitor for Atari ST

SILICA Shop has beaten Atari to releasing a colour monitor for the 520ST.

The store is offering a Fidelity colour monitor for £189, and the cable to connect the monitor to the ST for £19.95.

Atari's own colour monitor will cost £399.99, and is not yet available.

Silica Shop is also stocking a second Fidelity monitor/television in colour for £229. The same cable fits this model as well.

Details from Silica Shop, 1-4 The Mews, Hatherley Road, Sidcup, Kent DA14 4DX (01 309 1111).

Spectrum printer only £30

PRINTER prices continue to fall with the release of two new offers.

Dean Electronics has further cut the price of its Alphacom 32 printer for the Sinclair Spectrum down to only £29.95. The 40-column model prints using a four-inch wide paper roll at 20 characters per second. Details from Dean Electronics, Glendale Park, Farnbank Road Ascot, Berks. Tel. 0344-885661.

Samleco has announced a new lost-cost professional quality model. The 132-column 120 characters per second DX-135 model is priced at £339.60. Details from Samleco, 8 Fairacres Industrial Estate, Dedworth Road, Windsor, Berks. Tel 07535-54717.

Alphacom 32

Samleco DX-135



Apple counters Amiga

APPLE has reacted to the launches of Atari's 520ST model and Commodore's new Amiga by making significant price cuts on its Apple IIc and Macintosh ranges

The complete Apple IIc system comes down from over £1,600 to just £995 The package includes the Apple IIc (Apple II software compatible) micro with 128K Ram and built-in 3½ inch disc drive colour monitor and stand, second external disc drive, IIc mouse, *Mouse Paint* and *AppleWorks* software and carrying case A second IIc bundle also includes the liquid-crystal flat-screen display, bringing the price up to £1,395

Both the 512K and 128K Macintosh models have been cut in price The 512K Macintosh is brought down by £600 to £1 995 while the 128K originally £1,795 will now cost £1 595

● The company has also announced the departure of Steve Jobs one of its two founders and encouraging estimated fourth-quarter results Income at between $12–15m, though half last year's figure, is better than most analysts expected

Sinclair revamp

◄ continued from page 1

spokesman, 'machines like that are being developed all the time"

Since Sinclair's summer cash crisis and failed takeover by Robert Maxwell in June the company has slimmed-down significantly reducing staff by almost 15% to 120 Its Willis Road, Cambridge offices are to close, with all its operations moving to Milton Hall Cambridge, currently the home for Sinclair's development team, Mebalab

The company has also announced its expected board changes Only five directors of the original thirteen remain Sir Clive stays as non-executive chairman and takes charge of research and long-term strategy Bill Jeffrey remains as chief executive and Kenneth Dick – himself a director of Sinclair's financial advisors NM Rothschild – also keeps his seat on the board.

Among those who loose their directorships are ICL chairman Rob Wilmot and Richard Cutting, originally recruited to head-up Metalab Both will leave the company.

Others who will remain at Sinclair but loose their board positions include Nigel Searle, formerly UK managing director and now in charge of the US arm, Jim Westwood, Michael Pye, Dave Chattan and David Southward.

The Sinclair spokesman confirmed that following the reorganisation, Sinclair "will be looking for further financial investment in the near future"

Plus/4 chopped under £100

COMMODORE has bundled its Plus/4 micro in two new value packs

The first includes the Plus/4 1531 data recorder, joy stick and ten software titles for £99 99

The second – exclusive to Laskys – comprises the Plus/4, 1551 disc drive, MPS 803 printer and business software packs for £299.99

Letters

Home market

I cannot understand why reviewers insist on comparing the Atari ST with the Commodore Amiga Pricewise, it is like comparing a Spectrum with an Apricot F1e

In Britain the ST will be a home and business micro, while the Amiga is too expensive to penetrate the home market in significant numbers

I wonder how many of the home computer magazines would have reviewed the Amiga if it was not made by Commodore Would people compare the two machines if Jack Tramiel had not left Commodore and gone to Atari?

Gary O Connor
10 Bannal Lane
Buckley

Despite its high price – two-thirds that of a Mac – the Amiga deserves coverage because it is very powerful, yet a natural progression from the other lower-priced 68000 machines Unlike the 8088/8086 micros which are predominantly business machines, the 68000 micros – Macintosh included in the US – have all found favour in the enthusiast field.

Gift Coupon

Here is the third of the four coupons you will need to claim your *Popular Computing Weekly* Free Gift – either *Tony Kendle's Arcade Addicts' Handbook* or a Sunshine game cassette

Cut out the coupon and stick it on to the special reply flap attached to the front of the September 12 issue.

Free Gift Coupon No 3

Unbalanced?

We were appalled at the venomous and bitter treatment meted out by your reviewer Tony Kendle to our *Biology I* program (August 22)

We justifiably claim that this is the best program of its kind in the revision/comparison category and, being intelligent people, we sent it in for review with the expectation of fair treatment

The program was the result of painstaking work by a BSc (published author) in co-operation with a BEng (electronic computing) under my guidance

In ten years I have never read a review with the bitter venom of Mr Kendle's effort – it was biased, prejudicial to a narrow point of view lacking in interpretation, unbalanced to such a degree as to be fanatical and definitely not the work of an educationalist

I hope that the word 'Ireland' in our address didn't unduly influence your reviewer Please do us a favour and don't review us again

John Jennings
Managing Director
School Software
Limerick
Ireland

The word 'Ireland' in your address had no influence on our reviewer whatsoever.

Spectrum power

I think I may have underestimated the power of my Spectrum

Load in a copy of the Zeus Assembler and type in What is the meaning of life? using caps shift to obtain lowercase and a space between the e of life and the ? Then press Enter The assembler prints the correct answer – 42

The previous best time is around 10 million years by the Deep Thought computer

A Severn
Cheshire

Old rumour

The Amstrad 6128 had been rumoured for a long time no surprise when computers like the Atari ST are imminent

One must agree as to the wasteful nature of Amstrad's inflexible take-it-or-leave-it marketing though What price one undulating GT64/GT65 monitor or unuseable 464 tape recorder?

H Williams
Northants

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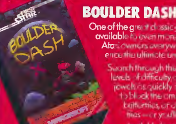
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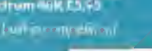
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Charity Appeal



5,000 game cassettes to be given away

At the end of October, Thames Television will screen a 24 hour television extravaganza called the Thames Television Telethon 85 to raise money for charity.

This massive event – the first 24-hour show on British Television – not only features a host of stars from television and radio but a whole range of fund raising activities – the target to raise over a million pounds for charity.

Popular Computing Weekly and the Telethon

Popular Computing Weekly is proud to form part of this giant fund-raising effort and we hope our readers will join with us in trying to raise as much money as possible

We hope to be able to present a cheque from our readers live on the show when it is broadcast between 7 30pm on October 29 and 7 30 on October 30.

We feel sure that you will want to help us raise as much money as possible by making a donation of whatever size to the address below.

But that's not all!

In conjunction with GOSH – the Guild of Software Houses – we have a bonus for those making a contribution of £1 00 or more – 5,000 great computer programs, donated by GOSH members, to be given away free!

The Games

For a contribution of £1 00 or more we will send you a computer game for your micro We can't guarantee what you'll get but the 5 000 tapes include such titles as *Choplifter*, *Attack of the Mutant Camels* and *Lazerzone*, but we will match up the game to your micro. (Don't forget to tell us what machine you have.)

Who will benefit?

Children and young people in, or from the Thames Television transmission area who are disabled disadvantaged, seriously ill, at risk or in need.

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The address to send the cheques to is the *Popular Computing Weekly* Telephone Appeal, 12/13 Little Newport Street, London WC2H 7PP

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....

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No trimmings

Hardware Ibico LTR-1 Printer **Price** £119.95 **Micro** Most models **Supplier** Saga Systems, 2 Eve Road, Woking, Surrey GU21 4JT.

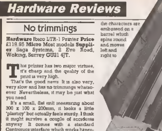
This printer has two major virtues, it's cheap and the quality of the print is very high.

That's the good news. It is also very, very slow and has no trimmings whatsoever. Nevertheless, it may be just what you need.

It's a small, flat unit measuring about 300 x 100 x 200mm, it looks a little 'plasticy' but actually feels sturdy. I think it might survive a couple of accidents anyway. It comes with a standard Centronics interface which works happily with all the computers I tried it with and a curious built-in serial option that would require quite a lot of effort to use.

The serial interface uses spare pins of the standard Centronics edge connector. It's a very simple kind of RS232C using 1200 baud and a standard one start bit eight data bits, one stop bit data format. The real problem is with the lead however. As far as I can see you have to make your own, working out which are the appropriate pins on the Centronics port and linking in to them using an Amphenol connector. Think of it as a bonus rather than a really useful facility.

The printing mechanism is also odd. The answer to the question 'Is the LTR-1 dot matrix or daisywheel?' is no. It isn't either really. It uses a strange barrel system a little like a golfball typewriter, the characters are embossed on a barrel which spins round and moves left and right to



position itself in the right place to print each character, being automatically inked by a roller that sits behind the barrel. The end result is very good quality print, but very slow, with a noise which, though not loud, sounds like rain falling on a tin roof. Official printing speed is 12 characters per second, for practical purposes, what with new lines and things, it's a bit slower than that.

Here then are the bad points, it's slow, has only one typeface (Elite 12) won't do anything fancy like double-strike, expanded, italics or anything else associated with even the cheapest dot matrixes, only accepts standard A4 (or smaller) paper fed by friction and doesn't have any facilities for anything other than a manual paper feed using a smallish plastic knob on one side of the printer. This has to be pushed in to engage and looks a bit unreliable to me and is worryingly non-standard.

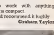
The latter is a problem not only with repairs but extends to the inking system itself – the printer uses a special ink roll that clips to a metal bar in the printer. It looks like you'd have to get replacements from Saga, I doubt if WH Smith will stock them. If you are going to buy this printer I'd advise you to get a dozen space ink rolls (£2.50) from Saga at the same time for safety.

However, and it's quite a big however, what you do get for a mere £119.95 is a printer that would be ideal for simple wordprocessing (if you have a little time to spare), producing a very acceptable printed result.

It seems to work with anything Centronics and is compact.

On balance I'd recommend it highly.

Graham Taylor





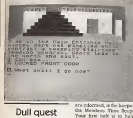
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Dull quest

Program *The Deeds of Glengarry Hall/The Ashes of Alucard* **Micro** Spectrum 48K **Price** £5.95 **Supplier** Terminal Software, 353 Bury Old Rd Prestwich, Manchester, M25 8AW

This double sided cassette contains the first two challenges in which you play the part of *Merlock the Mede*, who we are informed, is the keeper of the Meadeao Time Sceptre Your first task is to help a young friend claim his rightful inheritance by finding his late uncle's deeds and bonds unfortunately these are hidden somewhere in the gloomy mansion of the title

On first loading the game I thought the graphic depiction of Merlock and subsequent text intro to be very good However on playing the adventure I found this was the only interesting part, after exploring over 50 locations I found nothing to stimulate my imagination. Text descriptions are minimal and the vocabulary is to say the least limited Nevertheless there was the second challenge, awaiting me on the flip side so with open mind I set out to find *The Ashes of Alucard*

Treading through the lonely graveyard towards the decrepit old church, I soon realised my only chance of survival was to find the Hammer and Stake whereupon I could dispose of the evil Vampire, then by taking his ashes to the green pastures and spreading them my challenge would be completed Sounds easy in actual fact it was apart from a wild dog that appears at random intervals and is easily disposed of that is, if you are carrying the correct object. There are no real problems in the game and once again text descriptions are very brief

Terminal have aimed these adventures at inexperienced adventurers However even at £5.95 for two I feel they are over-priced

Roger Garrett

Own goal

Program *Match Day* **Micro** BBC **Price** £9.95 **Supplier** Ocean, 6 Central Street, Manchester M2 5NS

The BBC doesn't do all that well for arcade style software, many titles being little better than, say, Spectrum budget games in sophistication and quality It's good therefore to discover games that might make owners of other machines envious *Match Day* on the BBC is better than all the Spectrum games and comes reasonably close to the famous Commodore *International Soccer*

The strength of the game is its graphics – nicely animated players with lots of detail and plenty of colour – very cartoon like Backgrounds are also good the crowd consists of recognisable faces, and managers sit on the sidelines, no dark blurs here

The game works in the usual way – the player closest to the ball becomes the active one, the computer automatically sets up things like throw in's and goal kicks One problem with game is its speed. The players move rather sluggishly, which detracts from the tension a little, but with graphics as detailed as these this is probably unavoidable

The computer plays well, and I haven't managed to score a single point against it yet but perhaps that's me .

Superbly programmed and a game that really is (yuk) for all the family'

Graham Taylor

Seeing stars

Program *Star Strike 3D* **Micro** Enterprise **Price** £7.95 **Supplier** Enterprise Computers Ltd., 31-37 Hoxton Street, London N1 6NJ

There are two main families of shoot 'em up In one the aliens come to earth in the second we fight an away battle, as in *Star Strike 3D*, one of the best *Star Wars* style games on the Spectrum

Your mission comes in four parts Starting in the black depths of space you are bombarded by hostile fighters, than you skim and swerve across the planet's surface contributing to the environment by blasting anonymous tower blocks Next comes the trench, criss-crossed with catwalks and finally there's the control centre to shoot out the reactor pods – after which your reward is a view of the planet being blown to bits, hyperspace and the next level

My usual reaction was to the speed of the game The 3D line animation is so good I was swerving and swaying as I crossed the planet

One of the most addictive games of mass destruction available

John Minson

Small print

Program *Transact* **Micro** CPC range **Price** £25.00 **Supplier** Amsoft, Brentwood House 169 Kings Road, Brentwood, Essex CM14 4EF

Transact by Dialog Software has been advertised in its CP/M disc format in the £30 price range and appears to be quite a respected release so it was somewhat of a surprise to see the tape version out in a simple Amsoft cassette case with a cartoon on the front rather than a prestigious ring binder

The program is an accounts/book keeping package with heavy emphasis on VAT financial credits and debts, cash flow etc It does not appear to cover stock control, fixed assets or the like Unfortunately one irritating disadvantage of the packing is that the instructions have been squeezed into the tiniest booklet you can imagine, you don't have to worry about missing the small print – there isn't anything else there The style of writing is also turgid and difficult to follow Although I have experience of accounting I found that the two factors had my head spinning

Once in use however, if you had any data ready to enter, it became apparent that the extensive use of menus and prompts made it a lot more user friendly than it first appeared You can keep track of account balances profit and loss, sales and purchases, banking, cash and input and output Vat I think that Amsoft have probably identified a real market of very small business that have simple requirements and little money for hard and software and this program may suit them very well.

Tony Kendle

Street life

Program *Traffic* **Micro** CPC 464 etc **Price** £8.95 **Supplier** Amsoft, Brentwood House, 169 King's Road, Brentwood, Essex

When driving around large towns or cities have you ever, in idle moments of enforced leisure, imagined that there was some malicious deity or 'ghost in the machine' responsible for turning every traffic light red just as you approach. This new release from Amsoft gives you the chance to become the ghost and drive innocent motorists, and yourself, berserk in the process.

Traffic gives you a simple plan view of town streets where, at the junction of each block, there are those tricoloured banes of the motorist's life. You simply have to move the cursor to each junction to change the lights, keep things running smoothly, and stop horrendous tailbacks building up. It is a bit like those recent railway simulation games where you have to coordinate several trains to pick up passengers etc but without any entertaining graphics of irate commuters or the like. Instead 'bloblike' rather than 'entertaining' summarises *Traffic's* graphics. Still it is no less maddening for all that and difficulty increases rapidly to keep you on your toes.

Some people like games which challenge the ability to think quickly under pressure, to coordinate several things at once, to face ever increasing odds with no end or feeling of achievement in sight, to keep a level head whilst all around, etc. Personally they drive me up the wall. *Traffic* is one of these, and although it had me throwing the box around the room in frustration it is a reasonable effort and may be just your thing.

Tony Kendle

The DT's

Program *Daley Thompson's Super-Test* **Micro** Spectrum 48K **Price** £6.95 **Supplier** Ocean Software Limited, Ocean House, 6 Central Street, Manchester 2

Busy bloke, Daley T. As if the decathalon wasn't enough he's now involved in an eight event *Super-Test*. It's enough to make your joystick droop.

Ocean seem to have made something of a speciality of such sporting programs and as you'd expect it's a generally stylish package with many amusing touches adding to the smooth animation and a superb finish screen. But the desire to waggle joysticks from side to side results in some odd discrepancies.

Straight races (Cycling, Rowing and even the Tug O' War) adapt well to rapid wrist action, but pistol shooting doesn't, so why have it controlled by a sideways movement? In the end I resorted to the keyboard and still found it inconvenient.

Other events combine the joystick jiggle with fire button timing, such as the Penalties scoring, when you run to the ball then kick. The Ski Jump is similar but in Spring Board Diving the joystick controls your somersaults. The Giant Slalom has you build up speed at the start then transfer control to left/right to ski through the gates.

A final quibble, why no method of entering the first day's score when you start the second round, so as to provide an 'official' total? Still a nice variety of games and at least armchair athletes will get more exercise than watching *Grandstand* if they play it daily (ouch!)

John Minson

Money order

Program *QL Integrated Accounts* **Price** £89.95 **Micro** QL **Supplier** Sinclair Research

Sagesoft's Sage accounting program was first issued in 1980 and may well be the most popular UK accounting package.

It may be that this £90 microdrive cartridge based version for the QL can lay claim to being the best Value For Money accounting package today.

There is room on a cartridge for 1,000 transactions, so if your monthly number (in of payments and invoices made and received plus journal entries) is less than this, discs will not be essential.

QL Integrated Accounts seems aimed at companies with a turnover of a few hundred thousand pounds or less that need to keep track of debts with suppliers and customers, and would benefit from a nominal analysis.

The package produces open item ledger cards, statements and remittance advices, aged schedules, day books, cash books and audit trail. Thankfully, customer and supplier accounts are referenced by a short name. A full balance sheet and profit and loss account is maintained by the system. VAT reports to satisfy HM Customs are also produced, and it's easy to amend or add to the various ways of treating VAT.

It may seem odd that a program which prints statements can't produce invoices. The reason is, only one nominal analysis per invoice can be used (except VAT which is handled automatically). Where an invoice is to be analysed to several nominal accounts it is entered over several lines each with the same invoice number and account reference, but differing nominal codes. Consequently, the program is weak at spotting you've done something silly. Errors are, however, easy to correct except wrong tax codes, transaction dates and references which require an extra utility available from Sagesoft. It makes possible a turnkey accounting system for under £1,000. It should do well, not only selling to companies but also book-keepers able to spend £300 to update their skills.

John Tucker

Looking in the mirror

***Christina Erskine** takes tea with Jim Mackonochie at Maxwell House*

When Robert Maxwell clapped his arm around Sir Clive Sinclair's shoulder and declared that he wanted to help out a friend in trouble, it set a lot of people off speculating on how the acquisition of a micro company would fit into the Maxwell scheme of things

In all the excitement, the micro orientated company which Maxwell had inherited when he bought Mirror Group Newspapers was largely forgotten. Yet Mirrorsoft has been doing very nicely for itself for some two years now, and has emerged to operate without overt assistance from its powerful sibling companies

It may seem strange that Mirrorsoft should exist at all – after all, there is no Guardisoft, nor (thank goodness) Sunsoft Why should a national newspaper company feel it should establish a home software company under its wing?

"Simply because in the 1990s homes will have terminals for cable, electronic databases and so on, and a national newspaper group whose business is information dissemination needs to be positioning now for that time," says Mirrorsoft head Jim Mackonochie

"That's what I argued, anyway, when I was development manager at Mirror Group My job was to steer the Mirror papers into office automation and new technology, and looking at the US as a model, I could see that databases of information which could be accessed by people were going to come about

"I felt that a software publishing operation would help to set things up, so that we were a recognised name with experience when people in the home really begin to use computers to access information and leisure activities "

Printed paga

is keen that Mirrorsoft is not tied to any particular category of software Having earned a certain renown for its 'early learning' titles and also slightly quirky releases like *The Joffe Plan* (a weight loss schedule program) *Know You Own Ps-Q* and *Star Seeker* (astronomy), the plan now is to move on

Mirrorsoft is one of the first software companies to latch on to the new 68000 machines, the Atari ST and Amiga The first program for these machines, versions of its *Fleet Street Editor* program previewed at the *Personal Computer World Show* will soon be available. "*Fleet Street Editor* will certainly broaden our range," said Jim While it's not really a business program, I suppose it is a move in that direction "

The program enables people to plan a page layout, newspaper or magazine style, with a number of separate stories, headlines and graphics, and of course print out the finished page

Mirrorsoft expects it to go down particularly well in schools, clubs and societies – and not just computer clubs – for compiling bulletins, newsletters and leaflets "On a very simple level, you can use it like a word processor with graphics, but it will do a lot more than that

Fleet Street Editor is planned for an unusual combination of machines – not the usual Spectrum-Commodore-Amstrad by any manner of means A BBC version – on two discs – and Apricot F1e implementation are planned to appeal primarily to schools On the Atari ST, IBM PC and Amiga, the program will be expanded and rather more sophisticated. "For the last three it could be of real practical use to a small print shop or advertising agency," Jim suggested.



"It seems to fill a real gap in the market. We looked at Broderbund's *Print Shop* (available only in the US) and felt that the idea should work just as well over here

"Doing software for the Atari ST and Amiga machines is an investment – we're prepared to allocate resources to look for areas which have not been covered before

"I'm keen on the new 16-bit machines in the long term – say about five years time – I believe that the distinction between home and business machine will disappear Micros like Amstrad's PCW 8256, for example, are exactly the direction people will go "

Types of software similar to *Fleet Street Editor* – useful rather than recreational, but not businessy – are very much the sort of program Jim Mackonochie wants Mirrorsoft to publish. On the same lines the company is working on a conversion of *Spitfire 40* for the Atari ST, which is likely to appear on the Amiga as well

Mirrorsoft first came to the public eye as an educational publisher – with its *Mr Men* licence and *Caesar the Cat* Educational games for the under tens may not seem like the mass market, yet so far *First Steps with the Mr Men* has just sold over 25000 copies

Then came the games As a publisher, Mirrorsoft is able to commission from a variety of programmers, so it has never had a consistent brand image – you don't instantly recognise a Mirrorsoft game, as you would with Ultimate or Level9

It has also been able to pick up publishing and conversion rights to existing titles the MSX version of *737 Flight Simulator*, for example, and Amstrad and Atari versions of *Boulderdash*

The company has plenty of titles planned for the end of the year and beginning of next – it will not neglect the games market entirely in favour of more serious stuff.

Conversion rights

Another newspaper orienstated title, appropriately enough, is due out around the same time as *Fleet Street Editor*, called *Hold the Front Page* "In this you play the part of a journalist. The role of a journalist seems to be tailor-made for arcade-adventure style games, with detection work, ferreting things out and so forth," said Jim

Two more *Mr Men* titles are also planned for the autumn, plus another game for very young children, based on a licensing deal between Mirrorsoft and Yorkshire TV's programme, *Giddy Game Show*

As far as Mirrorsoft is concerned it is as if the Maxwell/Sinclair 'deal' never happened



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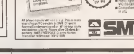
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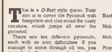


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Jumper

Fabbo arcade action on the Sinclair QL written by our Norwegian correspondent *Kristian Solase*



This is a *Q-Bert* style game. Your aim is to cover the Pyramid with footprints and also avoid the nasty creature, which jumps all over the pyramid

There are ten different pyramids, each with its own difficulties If you manage to come through all ten, you must do it all over again, but this time with *two* nasty creatures

All pound signs in the listing should be entered as hash signs

Program Notes

Char Set –	makes the new characters
Start –	makes windows and set variables
Make Pyramid –	makes the pyramid on the screen
Make Square –	makes a single piece of the pyramid
Print Lives –	prints the number of lives left
Move QBert –	checks if a key is pushed and move QBert
Show All –	prints characters on screen
Check QBert –	checks if QBert is dead
Make Print –	prints QBert on screen
Move Balls –	moves the balls randomly
Next Level –	moves to next level
Clean –	cleans the screen + variables
Dead –	shows the death of the QBert
Intro –	introduction and instructions
Print 3D –	prints text in 3D
All Dead –	ends game when you have died
Finished –	ends game when you have won

```
[illegible]
```

High frequency

Connect your hi-fi to your Spectrum with this program
by ***Michael Streeton***

The following program runs on the Sinclair Spectrum 48K, but modifications are necessary if it is to run on issue 1 and 2 machines. It is however microdrive compatible and no extra hardware is needed to run it.

The program takes sound input from the ear socket and displays it in the form of a line graph on the screen. Issue 1 and 2 machines display the graph upside down, but this can be altered by changing one logic statement in the program.

It was written in machine code for speed and accuracy, although no attempt has been made to synchronise timings. It occupies 72 bytes plus another 256 bytes of data.

The main problem with interpreting sound on the Spectrum is that unless you have an analog to digital converter the only way to input sound is via the ear socket. The ear socket is read as a two state device either high or low. This changes depending on what issue you have.

My solution to this problem is to keep a count (pseudo frequency), this count then changes in the following way. If the ear socket is set high (1) then the count is increased by one, if it is set low (0), then the count is decreased by one. This gives a rough frequency. If the frequency is high, then the ear socket value will change more often and the count will be displaced less. The opposite applies for low frequency.

The count can now be plotted as the *Y* axis on the graph. I originally scrolled this graph horizontally but this proved too slow. Instead of this I decided to keep a count ranging from zero to 255. This would loop back to zero when it reached 256. This count is plotted as the *X* coordinate and a new height is calculated. At each step of the loop *X* is plotted to give a line across the screen. The heights for each value of *X* are stored, when the program loops back to this value of *X* the old point is plotted over to wipe it out, then the new point is plotted and stored. When this is done very rapidly it gives the appearance of a continuous line across the screen.

Program One should be entered first and saved to tape, making any changes necessary. Program Two should now be entered, issue One and Two owners should make the changes as indicated. Once the data is correct and the program run, then the code will be saved after Program One on the tape. Rewind the cassette and load it back, it should now be ready for use. The reason for the *Beep* in Line 1000 is that when something loads the speaker is muted slightly – this also happens to the graph. The short *Beep* stops this.

Once you have saved the program, with any changes that were necessary, you can load it back and use it. When no sound is being played in, the line will stay at the bottom of the screen. When music is played in the line will become jagged and jump around.

The higher the frequency the smaller the peaks on the line. The higher the line the higher the volume at that point (ie, the line will not necessarily move up the screen if you turn the volume up but will, for example, when there is a loud drum strike).

You may have to adjust the volume and tone of your cassette recorder to get these results.

Assembly Program Notes
The program may be located anywhere, but to save space it is best put before or after the data. The data must however by located at a high byte address, ie, an address which the low byte is zero and the full address is an integer multiple of 256.

Notice Line 00000 between Lines 00190 and 00210 labelled with the pseudo op "issue": it reads *A119 3008 00000 issue jr nz,up*, this is for issue 3 machines only. For issues 1 and 2 machines it should read *A119 2808 0000 issue jr z,up*

Line No	
10	Sets code to equal the address of the start of the height data
30	Sets the program origin to 256 bytes of the start address of the data, ie, at the end of the data
50-80	These lines set the data values to 87 a set height, even if this is not the correct height, as when the program starts the main loop it plots *Over* the old points to wipe them out. If none have been plotted then a new point is plotted. This results in a line being drawn on the centre of the screen when the program is called. It can be removed if required as Program Two listing shows
100-110	These lines set the current height to

```
Program #1

  10 LET y=USR 41216  STOP
1000 CLEAR 40959  LOAD "soundcod
e"CODE 41216,72  BEEP .1,.1  RUN

Should you wish to remove the
line across the centre of the
screen add the following line.

   5 PLOT OVER 1,0,87  DRAW OVER
 1,255,0

Program #2

  10 DATA 33,0 160,54,87 44,32
  20 DATA 251,62 87,50 129,92
  30 DATA 243,126,205 55,161 219
  40 DATA 254,203,119,56,129 92
  50 DATA 32
  60 DATA 5,61,254,256,32,5,60
  70 DATA 254,176,40 246,50,129
  80 DATA 92,119,205,55,161,44
  90 DATA 32 223,219,254 203,71
 100 DATA 32,217,251,201,229 71
 110 DATA 77,205,170,34,71 4,62
 120 DATA 1,16,16 253,174,119
 130 DATA 225,201
1000 CLEAR 41216  LET t=0  FOR a
=41216 TO 41287  READ b  POKE a,
b  LET t=t+b  NEXT a
1010 IF t<>8850 THEN PRINT "code
 error check data" "out by ";885
0-t  STOP
1020 SAVE "soundcode"CODE 41216,
72

Owners of issue 1 & 2 machines
should make the following
changes to Program #2, to stop
the graph being displayed upside
down.

  50 DATA 40
1010 IF t<>8858 THEN PRINT "code
 error check data""out by ";885
8-t  STOP
```



67, it is stored in address 23681 for safe keeping

120 This line disables the interrupts to make the program run faster

140-150 These lines wipe over the old point, if it does not exist then a new line is plotted

160-170 These lines test the ear socket to see if it is set

180 This line recalls the current height.

00000 Decides if the height should be increased or decreased.

220-240 These lines decrease the count by one They also make sure the count does not go off the bottom of the screen

260-280 These lines increase the count by one They also make sure the count does not go off the top of the screen

300-320 These lines store the current height for use by the next *X* position, and when this point comes to be wiped out then the new position is plotted.

330-340 These points increment the *X* co-ordinate as well as the point to the previous heights It then loops back if 256 points have not been plotted, ie, all the way across the screen

360-380 These lines test to see if the user wants to exit the program It works for a variety of keys If the user does not want to exit then the program loops back for another loop round.

390-400 These lines enable the interrupts and return to Basic if this was requested

420-450 These lines are a plot routine, it is the same as the one in Rom but has been modified to only do plot *Over* Taking the *X* co-ordinate for the l register and the *Y* co-ordinate for the a register

```
A000            00010 code   equ  40960
0000            00020
0000            00030        org  code+256
A100            00040
A100 210048     00050 reset  ld   hl code
A101            00060
A103 3657       00070 clear  ld   (hl),57
A105 2C         00080        inc  l
A106 20F5       00090        jr   nz,clear
A108 3E57       00100        ld   a,57
A10A 32815C     00110        ld   (23681),a
A10D F3         00120        di
A10E            00130
A10E 7E         00140 start  ld   a,(hl)
A10F CD37A1     00150        call plot
A112 DBFE       00160        in   a,(254)
A114 CB77       00170        bit  6,a
A116 3A815C     00180        ld   a,(23681)
A119            00190
A119 2005       00200 issue  jr   nz,up
A11B            00210
A11B 3D         00220 down   dec  a
A11C FEFF       00230        cp   255
A11E 2005       00240        jr   nz,store
A120            00250
A120 3C         00260 up     inc  a
A121 FEB0       00270        cp   176
A123 28F5       00280        jr   z,down
A125            00290
A125 32815C     00300 store  ld   (23681),a
A128 77         00310        ld   (hl),a
A129 CD37A1     00320        call plot
A12C 2C         00330        inc  l
A12D 20DF       00340        jr   nz,start
A12F            00350
A12F DBFE       00360 finish in   a,(254)
A131 CB47       00370        bit  0,a
A133 20D9       00380        jr   nz,start
A135 FB         00390        ei
A136 C9         00400        ret
A137            00410
A137 E5         00420 plot   push hl
A138 47         00430        ld   b,a
A139 4D         00440        ld   c,l
A13A CDAA22     00450        call 8874
A13D [illegible] 00460       ld   b,a
A13E 04         00470        inc  b
A13F 3E01       00480        ld   a,1
A141            00490
A141 0F         00500 dot    rrca
A142 10FD       00510        djnz dot
A144 AE         00520        xor  (hl)
A145 77         00530        ld   (hl),a
A146 E1         00540        pop  hl
A147 C9         00550        ret
A148            00560
A148            00570        end
```


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Getting to the point

Speed up your cursor with this short machine code routine

by Michael St Aubyn

Most word processing programs provide some means of accelerating the cursor when large areas of screen need to be crossed. The program presented here provides a similar facility for the editing system of the BBC micro.

By pressing *Shift* at the same time as one of the gray editing keys (up, down, left, right and *Copy*), the cursor will move two character positions instead of one. Release *Shift* and the edit keys will function as normal. This is particularly useful when editing long lines of Basic, which need to be copied out in their entirety even when only a small change is required.

The program works by intercepting the keyboard event which is generated whenever a key is pressed and a character enters the input buffer. If it is a shifted-edit key, the code of the unshifted version is calculated by subtracting 16 and the resulting value inserted into the input buffer using **FX153* – the effect is the same as pressing the key rapidly twice in succession. You may like to try accelerating the cursor even further by changing the variable *speedfactor*. Changing this to four, for instance, will quadruple the speed.

The basic program needs only to be run once, after which it is redundant and can be deleted or overwritten by another program. The assembled machine code can if wish be saved by typing **Save Speedup C80+80* so the next time you wish to use it you simply enter **Run Speedup*.

The routine is protected against *Break* by redirecting the *Break* intercept vector. If you need to turn the facility off, type **FX247* followed by **FX13,2*. To re-enable it type **FX247,76* then **FX14,2*.

```
10 REM Accelerated Edit
20 REM BBC Micro OS1.0
30 REM Michael St Aubyn
40 :
50 speedfactor=2
60 osbyte=&FFF4:evntv=&220
70 FOR pass=0 TO 2 STEP 2
80 P%=&C80
90[OPT pass
100\initialise
110.init
120\set event vector
130 LDA #code MOD256:STA evntv
140 LDA #code DIV256:STA evntv+1
150 LDA #14:LDX #2:JSR osbyte
160\set BREAK vector
170 LDA #247:LDX #&4C:LDY #0
180 JSR osbyte
190 LDA #248:LDX #init MOD256:LDY #0
200 JSR osbyte
210 LDA #249:LDX #init DIV256:LDY #0
220 JSR osbyte
230 RTS
240\
250\event code
260.code
270 PHP
280 CMP #2:BNE exit
290 CPY #155:BCC exit
300 CPY #160:BCS exit
310 PHA:TXA:PHA:TYA:PHA
320 SEC:SBC #16:STA value
330 LDA #speedfactor-1:STA count
340.loop
350 LDA #153:LDX #0:LDY value
360 JSR osbyte
370 DEC count:BNE loop
380 PLA:TAY:PLA:TAX:PLA
390.exit
400 PLP
410 RTS
420\
430.count BRK
440.value BRK
450]NEXT
460 CALL init
```

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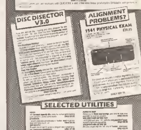
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Go for your guns

Create some great on-screen effects on the CPC464 with these programs by ***Brian Cadge***

The Amstrad's video display is produced by two pieces of hardware, the Video Gate Array and the CRT controller. The VGA controls the screen mode (resolution), and handles the loading of colours into palette memory. It is also used by the Amstrad to control the bank switching of ROMs.

The second part of the video hardware is the CRT (Cathode Ray Tube) Controller chip. The Amstrad uses the 6845 CRTC chip to control the positioning and size of the display on the monitor. Although the firmware uses some features of the 6845 hardware, principally for hardware scrolling the screen, there are many other useful features of this chip which the firmware does not support.

The 6845 has a total of 16 internal registers, most of which are Write-Only, that is to say we can output values to them, but we cannot read the current values from them. Two Z80 I/O port addresses are used to control the 6845, these are *BCXX* and *BDXX*. The former is the address port and the latter the data port.

Values are sent to a peripheral chip, such as the 6845, using the *Out* command in Basic. To send a value to one of the 6845 registers we first of all send out the registers number to the adress port *BCXX* to tell the chip which register we want to change. The actual data value to be put in the particular 6845 register is then output to the data port. So to send the value 40 to register one in the 6845 we would use the following Basic commands: *Out &BC00,1 Out &BD00,40*

Although the address port will keep the value one, it is always advisable to output the register number immediately before the data just in case the firmware has since updated the address port.

So just what are the 6845 registers used for? The table below lists the more useful ones. Those missing are either not implemented by the Amstrad hardware, or are only partly implemented.

Register	Function
0	Horizontal Total
1	Horizontal Displayed
2	Horizontal Sync Position
3	Sync Widths
4	Vertical Total
5	Vertical Total Adjust
6	Vertical Displayed
7	Vertical Sync Position
8	Interlace and Skew
9	Maximum Raster Address
12	Start Address (high)
13	Start Address (low)

It is generally not a good idea to alter any register involved with Sync functions, as this can lead to the loss of picture and you will have to reset the computer. The useful registers have the following functions. Register 0 controls the overall 'height' of the physical monitor screen. Program Four uses this feature to give a 'neon lights' effect that can be very useful for title displays, etc. An interesting feature of changing this register is that it controls when the frame flyback pulse occurs. Making the screen longer (as Program Four does) means it takes longer for the CRT to scan one 'screen' and so the interrupt occurs less frequently.

Register One controls the number of columns displayed on the screen. The Amstrad sets this to 40 (note this value applies to all modes) but this can be changed to display more or less of the border. Similarly, Register Six controls how many text lines are displayed, nunally 25. Register Two controls how far left the display starts and Register Seven controls how far down the display starts. Program One uses these positioning registers to allow you to move the text screen around on the monitor using the cursor keys.

Program Two uses the positioning registers and the size registers to reposition the screen in the top left hand corner of the monitor and then expand it to 24 columns by 34 lines in Mode 0. The border is completely concealed as the text screen now covers the whole of the monitor screen. In practice, if you change the size of the screen it will be necessary to check that the new display uses no more than 16K of memory or else wrap-round will occur. The firmware graphics and text routines will not operate as normal on different sizes of screen.

The position of text screen can be moved in all four directions in steps of one Mode 1 character. Register Five allows fine adjustment of the vertical position, this has many uses. For example, hardware smooth scrolling of graphics and text could be implemented. Program Three uses this register to give an 'earthquake' effect that can be used in games. The screen appears to 'shake' as in an earthquake. Try adding a *Call &BD19* in Lines 75 and 105 to see an example of smooth scrolling. This firmware routine waits for the current screen scan to complete before returning and can be used to tidy up screen updating.

The four programs presented with this article only show a few of the effects possible by direct manipulation of the CRTC chip. Although some of the effects may look strange, you cannot damage your monitor or computer by changing the register contents – if you lose the display just turn the computer on and off. You'll probably find lots more uses for the 6845 by experimenting with the registers yourself. But a word of warning, restrict all addresses in the *Out* command to *BC00* and *BD00* unless you know what you're doing or you might just lose the program in memory.

```
10 ' VDU PROGRAM #1
20 '
30   This program allows you to alter
40   position of the screen on the
50   monitor, using the cursor keys.
60
70 horz.pos=46:vert.pos=30
80 horz.adr=2:vert.adr=7
90 BORDER 1:INK 0,3:INK 1,26:PEN 1:PAPER 0:MODE 1
100 PRINT"Press the cursor keys to move the screen"
110 PRINT:PRINT"Press ESC ESC to finish...."
120 i$=INKEY$:IF i$="" THEN 120
130 IF i$=CHR$(&F2) AND horz.pos<60
    THEN horz.pos=horz.pos+1
140 IF i$=CHR$(&F3) AND horz.pos>32
    THEN horz.pos=horz.pos-1
150 IF i$=CHR$(&F1) AND vert.pos>20
    THEN vert.pos=vert.pos-1
160 IF i$=CHR$(&F0) AND vert.pos<40
    THEN vert.pos=vert.pos+1
170 CALL &BD19
180 OUT &BC00,horz.adr:OUT &BD00,horz.pos
190 OUT &BC00,vert.adr:OUT &BD00,vert.pos
200 GOTO 120
```

```
10 ' VDU PROGRAM #2
20 '
30 'This program demonstrates using
40 'all of the monitor screen for text.
50 'Giving 24 columns and 34 lines
60 ' in mode 0.
70
80 ON BREAK GOSUB 240
90 MODE 0:BORDER 0:INK 0,3:INK 1,12:INK
   2,20:INK 3,18,3:PEN 1:PAPER 0
100 horz.adr=2:horz.cols=1:ver4.
   adr=7:vert.lines=6
110 OUT &BC00,horz.adr
120 OUT &BD00,50     'Move screen left 4
130 OUT &BC00,vert.adr
140 OUT &BD00,35     'Move screen up 5
150 OUT &BC00,horz.cols
160 OUT &BD00,48     'Display 49 columns
170 OUT &BC00,vert.lines
180 OUT &BD00,34     'Display 34 lines
190 FOR i=1 TO 520:PRINT"*";:NEXT
200 LOCATE 1,19:PEN 2
210 PRINT STRING$(24,154)+CHR$(15)+CHR$
   (3)+"POPULAR COMPUTING WEEKLY"+
CHR$(15)+CHR$(2)+STRING$(24,154);
220 PEN 1
230 WHILE INKEY$="":WEND
240 OUT &BC00,horz.adr
250 OUT &BD00,46
260 OUT &BC00,vert.adr
270 OUT &BD00,30
280 OUT &BC00,horz.cols
290 OUT &BD00,40
300 OUT &BC00,vert.lines
310 OUT &BD00,25
320 MODE 1:CALL &BC02   reset default
    colours
```

```
10   VDU PROGRAM #3
20
30   This program can be used as a
40   subroutine to give an earthquake
50   effect in games.
60 '
70 FOR z=0 TO 2
80 OUT &BC00,5:OUT &BD00,z
90 NEXT z
100 FOR z=2 TO 0 STEP -1
110 OUT &BC00,5:OUT &BD00,z
120 NEXT z
130 IF INKEY$="" THEN 70
```

```
10   VDU PROGRAM #4
20 '
30   "Neon Signs" title program
40 '
50 MODE 0:INK 0,0:BORDER 0
60 a$=" POPULAR COMPUTING"
70 OUT &BC00,0:OUT &BD00,127
80 LOCATE 1,1:FOR x=1 TO LEN(a$):
   PRINT MID$(a$,x,1);
90 FOR d=1 TO 50:NEXT d,x
100 p=INT(RND(1)*15+1)
110 IF INKEY$="" THEN PEN p:GOTO 80
120 OUT &BC00,0:OUT &BD00,63:PEN 1:MODE 1
```



Graphic designer

Design characters for the MPS-801 printer on the 64 – from the keyboard of ***Peter Bartley***

This program is useful for designing graphics or characters specifically for a printer (in my case, the MPS-801) as opposed to UDGs on-screen. So, say, for instance, that you wanted a gothic script, you could design the characters on the screen grids and the relevant data would be printed out to obtain that character later.

I have opted for print-out rather than saving files to disc for the simple reason that you may not be happy with certain characters, and 'dross' would then accumulate on the disc.

Program Notes

Functions

- P up
- @ – erase dot
- k – plot dot
- l left
- – right
- – down
- 1 will fill the entire grid
- 2 will empty the entire grid
- q will put in the right character stops when designing letters leaving a space so that the defined characters don't join up when printed
- w will remove these stops
- a will reverse any design. all empty squares will be filled, all filled squares will be emptied
- s will invert any design bottom row becomes top, etc
- z will put 'trace' on. a trail of squares will be left wherever the cursor goes
- x will put 'rubout' on. this is the same as 'trace' but the trail is composed of spaces
- c will cancel rubout or trace (z or c)
- r will reset all three character grids, clearing them of designs and character stops
- % will return you to Basic (exit)
- F7 will output the design contained in the grid in which the cursor is flashing
- F1 small grid
- F3 double height grid
- F5 double height and width grid. The current grid is indicated on the display

Line No

- 10-40 Start-up screen. if printer is ok, press any key
- 50-120 These lines set the variables, arrays etc.
- 130-230 Print the grids and the menu
- 240-490 Main decision loop. decodes keypresses and acts accordingly
- 500 Indicates graphically on-screen the current grid.
- 540-590 Flashes cursor by alternately poking F with 214 or 32/207
- 600-630 Puts in or takes out character stops depending on the values of X and C
- 650-670 Reverses grid
- 680 Fills or erases grid depending on the value of Z
- 690-710 Inverts grid by reading the 'lines' into an array from top to bottom and then poking them back in reverse order.
- 720-740 Clears all grids by GOSUBbing to 'erase grid' and 'erase stops' routines
- 800-900 Output routine. This will output the character to the printer, followed by its relevant data

Obviously, other routines can easily be tagged on by adding more subroutines and control lines (240-490)

```
10 PRINT"     CBM-64 PRINTER CHARACTER DESIGNER     "
20 PRINT"CHECK   PRINTER ON" PRINT"PAPER OK"
30 PRINT"       HIT ANY KEY FOR MAIN PROGRAM      "
40 GETA$ IFA$=""THEN40
50 POKE53280,15 POKE53281,12 DIMG(13,11),N(13) K=54272
60 POKEK+1,156 POKEK+5,9 POKEK+6,25 POKEK+15,30 POKEK+24,143
70 OPEN3,4 PRINT"", P(1)=1068 P(2)=1428 P(3)=1440 Y(1)=6 Y(2)=13 Y(3)=13
80 PRINT#3 CHR$(10)CHR$(10)CHR$(14)CHR$(17)"CUSTOM PRINTER CHARACTERS"CHR$(13)
90 FORA=1TO3 X(A)=0 Y(A)=0 Q(A)=32 NEXT W(1)=5 W(2)=5 W(3)=11 M=1
100 F$(1)="F1  F3  F5  "
110 F$(2)="F1  F3  F5  "
120 F$(3)="F1  F3  F5  "
130 PRINT"  "
140 FORA=0TO6 PRINT""A"     " NEXT
150 PRINT"          012345012345"
160 PRINT"                    "
170 FORA=0TO13 PRINT""A-7*(INT(A/7))          " NEXT
180 PRINT"                  ",
190 GOSUB500
200 PRINT""TAB(30)"F7=OUTPUT  1 =FILL  2 =EMPTY"
210 PRINTTAB(30)"Q =STOPS  W =CLEAR  A =RVS"
220 PRINTTAB(30)"S =INVERT  Z =TRACE  X =RUBOUT"
230 PRINTTAB(30)"C =NORMAL  R =RESET  % =QUIT"
240 P=PEEK(197) GOSUB540
250 IFP=64THEN240
260 IFP=37ANDT(M)=0THENQ(M)=207 GOSUB540
270 IFP=46ANDT(M)=0THENQ(M)=32 GOSUB540
280 IFP=4THENM=1 GOSUB500
290 IFP=5THENM=2 GOSUB500
300 IFP=6THENM=3 GOSUB500
310 IFP=51THENX(M)=0 Y(M)=0
320 IFP=56THENZ=207 GOSUB680
330 IFP=59THENZ=32 GOSUB680
340 IFP=62ANDS(M)=0THENX=42 C=1 GOSUB600 W(M)=W(M)-1 S(M)=1
350 IFP=9ANDS(M)=1THENW(M)=W(M)+1 X=32 C=7 GOSUB600 S(M)=0
360 IFP=10THENGOSUB650
370 IFP=12THENT(M)=1 Q(M)=207
380 IFP=23THENT(M)=1 Q(M)=32
390 IFP=20THENT(M)=0
400 IFP=13THENGOSUB690
410 IFP=17THENGOSUB720
420 IFP=16THENGOSUB750 POKE198,0 PRINT"", POKE53280,14 POKE53281,6 END
430 IFP=3THENGOSUB800
440 IFP=41ANDY(M)>0THENY(M)=Y(M)-1
450 IFP=44ANDY(M)<V(M)THENY(M)=Y(M)+1
460 IFP=42ANDX(M)>0THENX(M)=X(M)-1
470 IFP=45ANDX(M)<W(M)THENX(M)=X(M)+1
480 IFT(M)=0THENQ(M)=PEEK(P(M)+X(M)+Y(M)*40)
490 GOSUB540 GOTO240
499 REM ************** GRID INDICATOR **************
500 GOSUB750 PRINT""TAB(18)F$(M) RETURN
539 REM ************** FLASH CURSOR **************
540 F=P(M)+X(M)+Y(M)*40 POKEF,214
550 IFP=64THENFORH=1TO50 NEXT
560 FORH=1TO10 NEXT
570 POKEF,Q(M)
580 IFP=64THENFORH=1TO35 NEXT
590 RETURN
```

```
600 REM *************** CHAR STOPS IN/OUT ***************
610 FORA=W(M)+P(M)TOW(M)+P(M)+V(M)*40STEP40 POKEA,X POKEA+54272,C NEXT
620 IFX(M)=W(M)THENX(M)=X(M)-1
630 RETURN
649 REM *************** REVERSE ***************
650 FORA=0TOV(M) FORB=P(M)+A*40TOP(M)+A*40+W(M) IFPEEK(B)=207THENPOKEB,32 GOTO67
0
660 POKEB,207
670 NEXTB,A RETURN
679 REM *************** FILL/ERASE GRID ***************
680 FORA=0TOV(M) FORB=P(M)+A*40TOP(M)+A*40+W(M) POKEB,Z NEXTB,A RETURN
689 REM *************** INVERT ***************
690 GOSUB750 FORA=0TOV(M) FORB=0TOW(M) G(A,B)=PEEK(P(M)+A*40+B) NEXTB,A
700 FORA=V(M)TO0STEP-1 FORB=0TOW(M) POKEP(M)+A*40+B,G(V(M)-A,B)
710 NEXTB,A RETURN
719 REM *************** CLEAR ALL OUT ***************
720 GOSUB750 FORM=1TO3 GOSUB500 Z=32 GOSUB680 T(M)=0 X(M)=0 Y(M)=0
730 IFS(M)=1THENW(M)=W(M)+1 X=32 C=7 GOSUB600 S(M)=0
740 NEXT M=1 GOSUB500 RETURN
750 REM *************** BELL ***************
770 POKEK+4,31 POKEK+4,32 RETURN
799 REM *************** OUTPUT ***************
800 GOSUB750 IFS(M)=1THENW(M)=W(M)+1
810 V=P(M) PP$="03" GOSUB850
820 IFM>1THENV=P(M)+7*40 M$="":S=0 PP$="06" GOSUB850
830 IFS(M)=1THENW(M)=W(M)-1
840 PRINT#3,CHR$(13) RETURN
850 M$="" FORA=0TOW(M) S=0 FORB=0TO6
860 IFPEEK(V+A+B*40)=207THENS=S+2↑(B-INT(B/7)*7)
870 NEXT H(A)=S+128 M$=M$+CHR$(H(A)) NEXT
880 PRINT#3,CHR$(8)M$CHR$(15)CHR$(16)PP$,
890 FORQ=0TOW(M) PRINT#3,H(Q)" ", NEXT PRINT#3,CHR$(8)
900 RETURN
```


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Just the start

Here are two letters giving tips for *Dragontorc* This program, which w perhaps the most successful attempt at an arcade adventure yet, has just appeared on the Amstrad which will please a lot of people If you haven't had a chance to buy a copy yet I suggest you keep this week's column in a safe (but don't peek at the answers too soon)

Peter Martin writes all the way from Cyprus "The information you gave for this wonderful game was great and helped me to progress as far as Moreg's fortress, although I haven't found any crowns yet Here are my tips Run the leyrod on the stones of the Dragon's teeth and then go to the green leycube which takes you to the dream downs Here you can take the squirrel and put it over the leaves to get a torch and uncover a stone slab Light the torch with the fire, exchange the bow beside it with an elf for a nut which can be opened by the squirrel. Take the key which is revealed with you to the ruins of Cantu

"Open the chest and use the symbol to move a slab to reveal the demon spell I have not found a use for this [Think on the message 'Set a thief ' Peter, this spell is invaluable in Hellsmouth, but could backfire if used elsewhere] Go to the forest and move the symbol over the slab which can take you to the ruins of Canto You need the torch to burn the snakes here In the dark room you will see a faint figure of the symbol you have and if you put one on the other e ley cube appears "

Thanks for those, Pete, although I suspect you have many hours of enjoyment still in front of you

Pete continues with some questions "How do you kill the demons?' With the exception of Hellsmouth you must use the *Missile* spell and *Mantle* to protect yourself "How do you kill werewolves?" The Werewolves slow you down and deduct energy if they bite Use *Heal* to move at normal speed. They can be killed with a warrior spell but this makes them very angry and it s best not to do so

"How do you find Merlyo's cave in Webwood?' You need to use the M symbol to move the flagstones "Where is the frog in Witchwood?" In the pool of course – you may have trouble finding this if you are blinded by the impe use *Warrior* to destroy them, use *Heal* and move or *Light* to see again

Marcus Marr and John Grey of Aberdeen have some more prosaic tips "Try completing as much as possible of the Citadel of Moreg because after that everything is easy


Dragontorc from Hewson Consultants

One useful tactic is to lead creatures into dead ends or places you never go to Let yourself die there as long as you aren't carrying objects you must keep To kill creatures go into the adjacent room and get missile/warrior ready and wait for them Elves can walk over anything that can be killed by a missile, but snakes and winged demons and skeletons can kill them Try to avoid this as they are very useful (invaluable in the Citadel) A final cryptic clue is 'Wyrmbane does not need batteries '

They want help on these points "So far we have got 66 3% and two crowns and now we are stuck! What use is the *Undo* spell?" It removes curses, eg in the vault of Locris after you have the Sunkey "Where and how do you get the Sunkey and the Cursed Key?" Both of these keys are in Sanctuary The Sunkey is held by a Goblin another Goblin has a green key that opens three green chests If you can solve the mysteries of Sanctuary enough to locate (hint) the hidden chest in an empty room you will find the Cursed Key.

'How do we get the sword?" You have to use the wand that you construct in Witchwood, and I'm sure you have that since you need it to get the full moon. "What do we do with the full moon?" You get to Sanctuary with it! Once you have the full moon first deactivate the magic sword and take that Cut sapling to make a magic broom Sweep leaves and you find a hedgehod (avoid it) a stone and a message – you should be able to figure it out from here but before you go make sure you find the light spell

What do you do with the Crystal of Antithought?" There are a couple of helpful messages that refer to this 'Stone' in the game, but in brief it is very useful once you have destroyed four crowns on the anvil I hope that helps, and thanks again to Hewson for the answers

Anyway, there's just room to begin our complete solution to a game of a rather similar vein on the Beeb *Castle Quest* – with many thanks to Dave Noble for the help Unfortunately it's a little confusing without the game in front of you but here goes "From start go up ladder left and up to Green guards Jump across gap, collect torch from top platform avoiding guard and back down to lower lever Trap monkeys in dead end to left of the ladder using the torch to push them back Make way quickly to the other torch and throw old one down to the bottom. The monkeys go down this ladder Turn back up the ladder where you are standing with the torch The monkeys now go along the bottom to the left

"Stand at the top of the next ladder with the torch and they should continue left to the spider Follow them closely past the first spider and pick up the sword. Chase them back past the same spider and drop the torch. Return to green guard area and collect the ruby killing the guards in the way. Store both the ruby and the sword ' More next week

Tony Kendle

Tony Bridge's Adventure Corner



Heavy-metal hero

Ask any keen adventurer for a list of things that s/he reckons to be essential to a good adventure, and you'll find "atmosphere" – a sense of "being there" – comes close to the top

Text adventures retain a very loyal following because a well-written scenario and detailed descriptions will lay a solid foundation for the player's own imagination.

Often graphic adventures, too, can convey atmosphere well The rather abstract pictures in Level 9's more recent games are good examples of unobtrusive graphics supporting rather than replacing the text

The other route, of course, that adventure writers can take is to make the pictures an integral part of the adventure The *Doomdark* series, for example, or Alan Davis' *Runestone* are among the better examples In these adventures the player must interpret information gleaned for the on-screen picture and piece the situation together with the help of maps Replacing text entirely is the other side of the coin, in games like *The Fourth Protocol* and the *Shadowfire* series This can be done, as in these cases with the use of icons or simply, as in arcade games, the joystick

One series that manages to involve the player rather more than most other games, is the *Tir Na Nog* saga from Gargoyle. The games are particularly popular because the player can wander around a landscape of fantasy – the open country in *Tir Na Nog*, and a town in *Dun Durach* The authors have created very attractive graphics and the heavy-metal hero, Cuchulainn is surely the 'baaadest' character ever seen!

I want to concentrate on *Dun Durach* over the next couple of weeks, but a few hints on *Tir Na Nog* won't go far amiss for those players still working through it These are from John Wilson, who has been a fount of much welcome advice over the past couple of months or so

To get the second part of the Torc go West from the tall Tablet in Lon Liath, then North, East North and East again (7 paces) then dig The complete Torc will render you invisible, so is useful for getting past Nathir – but be careful, its power reverses the effect To reveal a hidden door, carry the Crystal, and to pass Cave Wights, carry a gem of the same colour as the cave

There are so many facets of this game to cover them all, but to complete the game the player must collect Nuada's Sword The Stone of Fal, Lugh's Spear, Dagda's Cauldron and Calum's Hammer – and then what? Simply drop them at the base of the Altar

Now to *Dun Durach*. The game has much of the same feel as the earlier part of the trilogy but now takes place in the town of Durach. The player can explore



Dun Durach from Gargoyle Games

the game area in much the same way, but now other characters share the landscape with the hero

What's the point of the whole thing? Well, Ron Smith informs me that his quest to solve this excellent game has ended "I have found and released Loeg. During the game many riddles need answering, doors require unlocking, deals have to be made and lots of money gambled."

This seems to put it in a nutshell – Ron goes on to offer help in *Dun Durach* as well as *Tir Na Nog* His address is 11 Essex Road, Rushden, Northants

P Kentoe writes from 21 Mayfield Road, Liverpool 19 L19 QA with plenty of tips, as did Harry Wright (10 Masonfield, Bamber Bridge Preston PR5 8HN), Dave Simpson (Fire Section, RAF Wildenrath BFPO 42) and Mr A J Carless (4 Avondale Avenue, Worcester Park, Surrey KT4 7PD)

The rest of this week's Corner and next week's are an amalgam of all the advice that they've given.

The first thing in the process of exploring the town is to find four galleries – two are situated at Herne Hill (you can find the numbers yourself) another at Stone Road and the last at Marsh Street Gargoyle Games' play on words form a major part of both games and bearing in mind GG's sense of humour, the cryptic symbols on the doors must be translated in order to find out what objects to deposit behind the door Once the correct decision is made, you will receive a gift of jewellery Giving each of these gifts to Pris results in her giving you a message

You'll find pictures in every house If you note the house numbers along with the picture therein and then put them in numerical order, you'll end up with another cryptic message and this is where a Periodic Table might come in handy

Having visited all the galleries, you must buy a moleskin from the skinner and then give it to Bren, who gives you a map in return Go to 21 Cinder Bank where you will find pyrites (Fool's Gold!) Buy the platinum and give this to Bren for another map If you now give this to Ryde, you'll receive a shield Take this to Hal Belmus to find another clue (the number of a hidden door in Cross Street)

Another object to buy (or steal!) is the statue of the rat If you now go to Claw Lane (follow the rats and they'll lead you to a hidden door) you will come across Teth Give him the statue and he will give you a key – this will get you into gaol. Before doing this, however, you should buy some philtres and give one each to Lara, Kel and Kahn in return for a script from each. Once in the gaol, you will need the information gained from these scripw

Next Week: more information and a map of Durach's environs

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Top Twenty

1	(1)	Way of the Exploding Fist *(Spectrum/64/Amstrad)*	**Melbourne House**
2	(-)	Daley Thompson's Supertest *(Spectrum)*	**Ocean**
3	(4)	Now Games *(Spectrum/C64)*	**Virgin**
4	(3)	Summer Games II *(C64)*	**Epyx/US Gold**
5	(6)	Hypersports *(Spectrum/64)*	**Imagine**
6	(2)	Sky Fox *(C64)*	**Ariolasoft**
7	(8)	Frank Bruno's Boxing *(Spectrum/Amstrad)*	**Elite**
8	(10)	Finders Keepers *(Spectrum/64/Amstrad/MSX)*	**Mastertronic**
9	(5)	Nightshade *(Spectrum)*	**Ultimate**
10	(11)	Beach-head II *(C64)*	**Access/US Gold**
11	(7)	Frankie Goes to Hollywood *(Spectrum/C64)*	**Ocean**
12	(-)	Chiller *(Spectrum/C64/Amstrad)*	**Mastertronic**
13	(15)	BMX Racers *(Spectrum/C64/C16)*	**Mastertronic**
14	(-)	Jet Set Willy II *(Spectrum/C64)*	**Software Projects**
15	(9)	Action Biker *(Spectrum/C64)*	**Mastertronic**
16	(18)	Dambusters *(Spectrum/C64)*	**Sydney/US Gold**
17	(20)	Red Moon *(Spectrum/C64/BBC/Electron/Amstrad)*	**Level 9**
18	(13)	Beach-head *(Spectrum/C64/BBC/Amstrad/Atari)*	**Access/US Gold**
19	(-)	Soft Aid *(Spectrum/C64)*	**Various Artists**
20	(-)	Cylu *(Spectrum/C64)*	**Firebird**

Figures compiled by Gallup/Leisurescope

Readers' Chart No 43

1	(1)	Way of the Exploding Fist (Spectrum/C64/Amstrad)	**Melbourne House**
2	(2)	Hypersports (Spectrum/C64)	**Imagine**
3	(3)	Elite (C64/BBC/Electron)	**Firebird/Acornsoft**
4	(7)	Frankie Goes To Hollywood (Spectrum/64)	**Ocean**
5	(8)	Summer Games II (C64)	**Epyx/US Gold**
	(4)	Frank Bruno's Boxing (Spectrum)	**Elite**
7	(5)	Shadowfire (Spectrum/64)	**Beyond**
8	(10)	Red Moon (Spectrum/C64/BBC/Electron/Amstrad)	**Level 9**
9	(-)	Nightshade (Spectrum)	**Ultimate**
10	(-)	Soft Aid (Spectrum/C64)	**Various Artists**

Winning phrase No 43 "Fiddler on the roof scared pussy away!" from P Walker of Whitehaven, Cumbria, who receives £25 Runners up "Tories laugh at Dr Owen's SDP hype" from Philip Barnstable, Sevenoaks, Kent, and "Owen hits Thatcher for six any day" from M Valentine of Shrewsbury

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ALTER-EGO

The latest release from Quicksilva is called *Schizofrenia* a game which consists of you and your alter-ego batting it out over several screens to reach eventual psychic reconstitution. Someone is almost certainly going to be offended by this and I wouldn't blame them.

Anyway to the game. It features reasonable graphics, the two 'yous' looking like a cross between Basil Fawlty and Frank Zappa, the mad leg movements make me more confident that the former was the intention. The joystick performs a variety of different controls beyond the usual directions, which change according to what screen you are on. The first screen requires you to set two switches and release some door bolts. The problem is that the other you resets switches and pushes back the door bolts as he comes past.

I found it utterly infuriating and, perhaps because of our naff Popular joysticks, impossible to control the man with any degree of dexterity. Those who venture further will find four other screens which require things to be switched on and off, codes to be found and the like.

SCHIZOFRENIA

QUICKSILVA

Program	*Schizofrenia*
Price	*£7.95*
Micro	*Commodore 64*
Supplier	*Quicksilva Ltd, 222 Regent St, London W1R 7DB*

BUNDLED

I have a feeling that this Christmas's thing is going to be the bundled collection – old games all together on one tape at a reduced price. There's no arguing that it represents good value for the customer (assuming the collection consists of what were reasonably successful programs) but it's hard to get very excited about it.

English Software has put together four of its best Commodore 64 titles on one tape at £6.95. The programs are *Henry's House*, *Jet Boot Jack*, *Stranded* and *Neptune's Daughters*.

Henry's House is a fairly entertaining Minerish platforms and ladders game with some wacky touches – collect lots of things, dodge lots of other things. *Jet Boot Jack* is sort of similar, but involves platforms and ladders over several levels and has more strategy to it.

Stranded is a graphics adventure of some merit and *Neptune's Daughters* is a destroy various things at various times, get to later levels and if you're lucky rescue two naked women in the bottom of the sea. The usual stuff.

Not a duff game here, although none of them will make you go gaga with delight. The price is incredibly reasonable – you get four games cheap and English Software get to make some more money out of otherwise dead games. Seems fine to me.

Program	*Henry's House Vol 1*
Price	*£6.95*
Micro	*Commodore 64*
Supplier	*The English Software Co, 1 North Parade, Parsonage Gardens, Manchester M60 1BX*

YOUR MOVE

One of the few programs that in any way vindicated the QL as a powerful machine was Psion's *QL Chess*.

Now even that virtue has been shattered by the fact that *Cyrus II 3D Chess* which runs on the Amstrad CPC464 looks just as good and at least at the lower levels appears to play just as well.

Cyrus II Chess forms part of Amsoft's new Amsoft Gold range and retails for £9.95 on cassette. The main feature of the game apart from, obviously, its ability to play a very

Pick of the week

VERY

Fairlight may be one of the most sophisticated games the Spectrum has ever seen.

It uses some of the ideas and screen layout of *Knight Lore* and *Alien 8* and gives them greater flexibility and detail. The notion that 'you can do whatever you want' with objects is extended beyond the Ultimate idea of moving objects around putting them on top of one another to reach other objects and so on. In *Fairlight* there are many different kinds of objects and they may be used in many different kinds of ways.

The central figure is a little moustachioed knight, neatly animated; he can move around, jump, bend down to pick up things and wield a nifty blade when required to fight, which is pretty often. The settings are the chambers, ledges, turrets and battlements of an expansive castle. Here and there guards march back and forth, you can kill them and they disappear leaving only their helmets behind.

However, the guard's death is temporary – they reappear again where their helmets lie. This could be tricky but, if you pick up the helmet you can then drop it where it can't do any harm –

This Week

Program	*Type*	*Micro*	*Price*	*Supplier*
Magic	Ed	Amstrad	£9.95	Macmillan
Screenplay	Ed	Amstrad	£9.95	Macmillan
World Cup Soccer	Ed	Amstrad	£6.95	Macmillan
Southern Belle	S	Amstra	£7.95	Hewson
Spot the Ball	Arc	Atari	£9.95	Creative Sparks
Monitor	Ut	BBC	£39.95	BBC Soft
Payslip	Ut	BBC	£2.00	Computer Soft
Terrormolinos	Ad	Commodore 64	£7.95	Melbourne House
Blackwyche	Arc	Commodore 64	£9.95	Ultimate
Mega Compilation	Arc	Commodore 64	£7.95	Interceptor
Sparklers Special	Arc	Commodore 64	£7.50	Creative Sparks
Super Scramble	Arc	Commodore 64	£1.99	Martham Micros
Topper the Copper	Arc	Commodore 64	£9.95	English
Orm and Cheep	Ed	Commodore 64	£6.95	Macmillan
Micro Prolog	Ut	Commodore 64	£79.95	Logic Program
Astro Clone	Arc	Spectrum	£7.95	Hewson
Sparklers Special	Arc	Spectrum	£7.50	Creative Sparks
Magic	Ed	Spectrum	£8.95	Macmillan
Orm and Cheep	Ed	Spectrum	£6.95	Macmillan
Screenplay	Ed	Spectrum	£8.95	Macmillan
World Cup Soccer	Ed	Spectrum	£6.95	Macmillan
Class List	Ut	Spectrum	£3.00	Computer Soft
Cas Sin Tao	Ut	Spectrum	£3.00	Computer Soft
Fuel Consumption	Ut	Spectrum	£2.00	Computer Soft

SOPHISTICATED

like the courtyard from which there is no escape All part of the 'do anything you like' style of the game and it goes beyond what the Ultimate games allow

Presumably for the usual reasons of colour attribute clash and memory saving, the screens are mostly two-colour only, black main characters with different coloured backgrounds

As I've said before, I find that not only does this not matter in some ways I prefer it – it has a style of its own I'm slightly less sure about some of the graphic design in the game, mostly it's good but occasionally screens look a bit less slick – they lack the graphic neatness of the Ultimate settings

That's by way of niggles though Probably The Edge will be irked by comparisons with Ultimate all the time but given the look of the game and its technical sophistication that's rather inevitable

I think The Edge has actually trounced Ultimate with *Fairlight* though There is more game, more subtlety and a greater sense of it being all up to you

And in many ways it is a more worthy successor to *Alien 8* than Ultimate's own *Nightshade*

Two final points, *Fairlight* also features what appears to be three-channel sound on the Spectrum – it had us Spectrum sound loathers of old, open mouthed with disbelief Secondly, *Fairlight* is still one of the ten best programs ever made for the Spectrum – put it on your Christmas list now (if you can wait that long)

Program *Fairlight*
Price *£9 95*
Micro *Spectrum*
Supplier *The Edge*
31 Maiden Lane
London
WC2 9LH

good game of chess, is the screen display This presents the chess board in edge-on rather than the usual aerial view just like *QL Chess*. Consequently, pieces appear to move around and between one another rather than jumping from square to square It's a beautiful effect, each of the pieces being fully shaped in the classic chess-piece way rather simply being a symbolic crown or whatever

My only niggle is that because of the restrictions of the high resolution screen, there isn't much colour distinction between the various visual elements, one side is blue the other white squares are two different shades of blue and your side is white It can get a little confusing especially when your piece is between two opposing pieces

There are a vast number of special options available in the game many skill levels defined by time taken to think, set up positions (to solve chess puzzles), take back moves and even a 'normal' display of the board from above if you want

Really a splendid program and certainly the best chess program on the Amstrad By comparison with other chess programs it's even cheap

Program *Cyrus II Chess*
Price *£9 95*
Micro *Amstrad*
Supplier *Amsoft*
Brentwood House
169 Kings Road
Brentwood
Essex

DIGITAL

It's educational computing time again – supposedly the reason why according to the adverts, you had to buy a computer for your children in the first place I know there are a few good packages out there, but it's the pointless ones that proliferate

Take *Tell the Time* from Duckworth Educational Computing, for example Who is it aimed at? Do you really need a computer to teach young children to tell the time?

Let's not be too unfair to Duckworth though The various programs cover analogue and digital displays, plus the 24 hour clock using methods – ' designed by Psychologists' And for once, the packages go for a half-way reasonable price But if a program can't make significant advances over a well designed book, one feels compelled to ask fundamental questions about the point of it

Program *Tell the Time*
Price *£5 95*
Micro *BBC B/Amstrad*
Supplier *Duckworth*
The Old Piano Factory
43 Gloucester Cres
London NW1

This Week

Russian	Ut	Spectrum	£1 00	Computer Soft
School Funds	Ut	Spectrum	£3 00	Computer Soft
YHA Costs	Ut	Spectrum	£3 00	Computer Soft
Mountain Planner	Ut	Spectrum	£3.00	Computer Soft

Key **Ad** – adventure **S** – strategy simulation
Arc – arcade **Ut** – Utility
Ed – education

BBC Soft, 35 Marylebone High Street London W1M 4AA 01 580 5577 **Computer Soft,** P Nethercot 2 Chantry Close Sunderland SR3 2SL **Creative Sparks,** Thompson House 296 Farnborough Rd Farnborough, Hants, 0252 543333 **English,** Box 43 Manchester M60 3AD 061-835 1358 **Hewson,** 7 Grahame Close Blewbury Oxon OX11 9QE 0235 832939 **Interceptor,** Interceptor Micro s Lindon House The Green Tadley, Hampshire 07356 71145 **Macmillan,** Macmillan Information Systems 4 Little Essex Street London WC2R 3LF 01-836 6633 **Mertham Micros,** 15 Elmcroft Road Yardley Birmingham B26 1PJ 021-783 8065 **Melbourne House,** 39 Milton Trading Estate Abingdon Oxon OX14 4TD 0235 835001 **Ultimate,** Ultimate Play the Game Ashby de la Zouch Leicester LE6 5JV 0530 411485



Horse power

It is strange but something makes us want some kind of easy evaluation of a machine's power

Whatever sort of machine – cars are measured in performance terms by their 0-60 mph acceleration times (if sports models) or in miles per gallon (for economy versions) Washing machines by their spin speed

For micros we have evolved a similar system – every bit a misleading as those for cars and spin driers Micros are often classified by processor and by Ram size

Sinclair always reckoned that one of its mistakes was to call the Spectrum a 48K machine Numbers matter, yet sometimes even by processor speed or instruction handling speed (x million instructions per second) the Spectrum actually has more useable memory than the Commodore's 64 Those who remember the Lynx 48K will recall that it only offered around 13K of programming space

These days the distinctions are becoming even more blurred Atari's 260ST, when it is finished, will have over 100K of Rom software built-in. The system software doesn't reside in Ram, making the classification by memory size even more misleading

Equally, classifying machines by which microprocessor chip they use at their heart, whilst being quite a good guide, can be pretty unhelpful. Obviously, whether it is 8-or 16-bit gives a good indication of power, but beyond that things can get confused The reason why the Amiga is such a powerful machine is not just due to its 68000 processor The machine's strength derives from the support chips surrounding the processor In the Amiga's case three complex custom chips take complete control of the machine's graphics, sound and memory handling The incredibly fast line drawing and area filling has nothing whatever to do with the 68000 And, the 256K Ram capacity gives a completely false impression of the machine's power – compared say with the 512K Atari ST.

Both the Amstrad and Spectrum are Z80 processor based, yet the Amstrad has considerably better sound than the Spectrum For that matter the QL is a machine which uses the fast 68008 processor and which has some software available for it (from Sinclair even) which would look perfectly at home on a ZX81

Quite why there is this need to develop a simple-to-use ranking system isn't clear But the desire for a conclusive answer to 'Which machine is best' is ever present Micro owners often indulge in conversations about why one micro is better than all the others It's the basic competitive nature of human beings Two cars are always better than one, even if you can t drive them both at once

It is an odd perverse human trait, and one which runs the whole gamut of mankind's endevours.

Every micro has its particular strengths and weaknesses And you end up buying the one for you, governed by price, performance, what you want it for – graphics, music, word processing – and how much you are really going to use it.

To choose a micro on the basis of its processor and Ram capacity is highly unsatisfactory, though

Unfortunately, there isn't any obvious alternative indication of power

There is no sensible 0-60 equivalent for micros

David Kelly

Face down

Puzzle No 176

I have a gross of cards numbered one to 144 These cards have been dealt in order, in a circle face upwards on the floor I then choose any card and turn it face down Suppose this card was 54 Having turned this card face downwards I count round clockwise this value This would bring me to card 108 I turn this face down and count round again only this time counting 108. This would bring me round to card 72. Repeating this procedure, I continue for as long as possible until I reach a card which has already been turned face down In the case above the sequence would run 54, 108, 72 and 144 The final card turned (144) would end the sequence as a count of 144 would bring me round to the same card.

Therefore, a start value of 54 would result in a score of four points as there would be four face down cards at the end Note that in counting the face-down cards are counted in passing over

Starting again with all cards face up I choose my age, in years, as the starting point. I find that my score is exactly the same as it would have been had I had started at the next card (my age plus one) How many points did I score?

Solution to Puzzle No 171

The field measured 693 by 1924 yards The diagonal will therefore by 2045 yards in length.

```
10 AREA=1333332
20 FOR A=1 TO 1154
30 LET B=AREA/A
40 IF B<>INT(B) THEN GOTO 80
50 LET H=SQR(A*A+B*B):LET H=VAL(STR$(H))
60 IF H<>INT(H) THEN GOTO 80
70 PRINT A;B;H
80 NEXT A
```

It is necessary to find two integers having a product of 1333332 and which, if they were the legs of a right-angled triangle would produce an hypotenuse that is also integral

Winner of Puzzle No 171

The winner is Ewen McRobbie of Inverness, Scotland, who receives £10

Rules

The closing date for Puzzle No 176 is October 23

The Hackers

Yes, it's a good ad for our new portable computer Mr Binks ..
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And I can't quite put my finger on what ..
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Commodore 64
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